

SHEET 1 of 3

<b>INFORMATION DISCLOSURE CITATION</b>  <b>PTO-1449</b>	<b>Atty. Docket No.</b>	<b>Serial No.</b>
	NTI-004	09/814,025
	<b>Applicant</b>	
	KARKLIN, Linard	
	<b>Filing Date</b>	<b>Group</b>
	3/20/2001	2623

**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
S.A	6,130,750	10/10/2000	Ausschnitt, et al.	356	401	8/28/1997
S.A	6,346,426 B1	2/12/2002	Toprac, et al.	438	8	11/17/2000

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SHEET 2 of 3

<b>INFORMATION DISCLOSURE CITATION</b>  <b>PTO-1449</b>			<b>Atty. Docket No.</b> NTI-004		<b>Serial No.</b> 09/814,025	
			<b>Applicant</b> KARKLIN, Linard			
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<b>EXAMINER'S INITIALS</b>	<b>PATENT NO.</b>	<b>DATE</b>	<b>NAME</b>	<b>CLASS</b>	<b>SUBCLASS</b>	<b>FILING DATE</b>
S.A	2002/0164064 A1	11/7/2002	Karklin, et al.	382	145	3/20/2001
S.A	2002/0164065 A1	11/7/2002	Cai, et al.	382	149	3/20/2001

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<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>		
<b>EXAMINER'S INITIALS</b>	<b>CITATION</b>	
S.A	Lin, B.J., et al., "Single-Level Electric Testsites for Phase-Shifting Masks", SPIE, Vol. 1673, pp. 221-228, March 9-11, 1992.	

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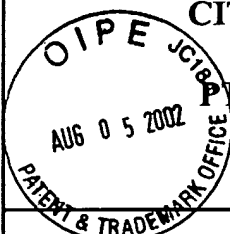
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		<b>Applicant</b> KARKLIN, Linard		<b>Group</b> 2621		
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<b>U.S. PATENT DOCUMENTS</b>						
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S.A	6,016,357	1/18/2000	Neary, et al.	382	144	6/16/1997
	6,023,328	2/8/2000	Pierrat	356	237.4	2/23/1998
	6,076,465	6/20/2000	Vacca, et al.	101	481	9/19/1997
	6,091,845	7/18/2000	Pierrat, et al.	382	144	2/24/1998
	6,272,236	8/7/2001	Pierrat, et al.	382	144	7/18/2000
	6,334,209 B1	12/25/2001	Hashimoto, et al.	716	21	9/2/1999
✓	2002/0019729 A1	2/14/2002	Chang, et al.	703	6	8/7/1998

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<b>FOREIGN PATENT DOCUMENTS</b>							
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S.A ↓	WO 97/13370	4/10/1997	WO			<input type="checkbox"/>	<input type="checkbox"/>
	WO 98/20327	5/14/1998	WO			<input type="checkbox"/>	<input type="checkbox"/>
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	3/20/2001	2621

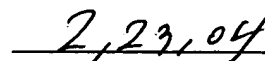
**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

EXAMINER'S INITIALS	CITATION
S.A	Spence, C., et al., "Detection of 60(degree) Phase Defects on Alternating PSMs", Advanced Micro Devices, KLA-Tencor, DuPont RTC (2 pages).
	Ogawa, K., et al., "Phase Defect Inspection by Differential Interference", Lasertec Corporation (12 pages).
	Socha, R., et al., "Printability of Phase-Shift Defects Using a Perturbational Model", Univ. of California Berkeley, Sematech (11 pages).
	Fiekowsky, P., "The End of Thresholds: Subwavelength Optical Linewidth Measurement Using the Flux-Area Technique", Automated Visual Inspection (6 pages).
	Watanabe, H., et al., "Detection and Printability of Shifter Defects in Phase-Shifting Masks", Japanese Journal of Applied Physics, Vol. 30, No. 11B, pp. 3016-3020, November 1991.
	Hosono, K., et al., "A Novel Architecture for High Speed Dual Image Generation of Pattern Data for Phase Shifting Reticle Inspection", SPIE - Integrated Circuit Metrology, Inspection, and Process Control VI, Vol. 1673, pp. 229-235 (1992).
	Ohtsuka, H., et al., "Evaluation of Repair Phase and Size Tolerance for a Phase-Shift Mask", J. Vac. Sci. Technol. B, Vol. 11, No. 6, pp. 2665-2668, November/December 1993.
	Reynolds, J., "Elusive Mask Defects: Reflectivity Variations", Solid State Technology, pp. 75-76, March 1995.
	Kusunose, H., et al., "Direct Phase-Shift Measurement with Transmitted Deep-UV Illumination", SPIE, Vol. 2793, pp. 251-260 (1996).
	Fiekowsky, P., et al., "Defect Printability Measurement on the KLA-351: Correlation to Defect Sizing Using the AVI Metrology System", SPIE 19th Annual BACUS Symposium on Photomask Technology and Management Conference, pp. 1-6, September 1999.
	Tejnil, E., et al., "Option for At-Wavelength Inspection of Patterned Extreme Ultraviolet Lithography Masks", SPIE Bacus '99, pp. 1-12 (1999).
✓	Hemar, S., et al., "Finding Killer CD Variations by Full-Reticle CD Mapping", Microlithography World, pp. 4, 6, 8 & 10 (Summer 2000).


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		<b>Applicant</b> KARKLIN, Linard		<b>Group</b> 2621		
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<b>U.S. PATENT DOCUMENTS</b>						
<b>EXAMINER'S INITIALS</b>	<b>PATENT NO.</b>	<b>DATE</b>	<b>NAME</b>	<b>CLASS</b>	<b>SUBCLASS</b>	<b>FILING DATE</b>
S.A.	6,081,659	6/27/2000	Garza, et al.	395	500.22	4/26/1999
S.A.	6,171,731 B1	1/9/2001	Medvedeva, et al.	430	5	1/20/1999

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## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER'S INITIALS	CITATION
SA	Adam, K., et al., "Simplified Models for Edge Transitions in Rigorous Mask Modeling", University of California Berkeley (40 pages).
	Gordon, R., et al., "Mask Topography Simulation for EUV Lithography", FINLE Technologies Inc. (15 pages).
	Pistor, T., "Rigorous 3D Simulation of Phase Defects in Alternating Phase-Shifting Masks", Panoramic Technology Inc. (13 pages).
	Semmier, A., et al., "Application of 3D EMF Simulation for Development and Optimization of Alternating Phase Shifting Masks", Infineon Technologies AG (12 pages).
	Wong, A., et al., "Polarization Effects in Mask Transmission", University of California Berkeley (8 pages).
	Neureuther, A., et al., "Modeling Defect-Feature Interactions in the Presence of Aberrations", University of California Berkeley (10 pages).
	Mathur, B.P., et al., "Quantitative Evaluation of Shape of Image on Photoresist of Square Apertures", IEEE, Transactions On Electron Devices, Vol. 35, No. 3, pp. 294-297, March 1988.
	Crisalle, O., et al., "A Comparison of the Optical Projection Lithography Simulators in SAMPLE and PROLITH", IEEE, Transactions On Semiconductor Manufacturing, Vol. 5, No. 1, pp. 14-26, February 1992.
	Qian, Q.D., et al., "A New Scalar Planewave Model for High NA Lithography Simulations", IEEE, pp. 45-48 (1994).
	Balasinski, A., et al., "A Novel Approach to Simulate the Effect of Optical Proximity on MOSFET Parametric Yield", IEEE, pp. 37.6.1-37.6.4 (1999).
✓	Balasinski, A., et al., "Comparison of Mask Writing Tools and Mask Simulations for 0.16um Devices", IEEE, SEMI Advanced Semiconductor Manufacturing Conference, pp. 372-377 (1999).

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*S. J. H. H.*

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			APPLICANT Karklin, et al.			
			FILING DATE 3/20/01		GROUP 2621	
<b>U.S. PATENT DOCUMENTS</b>						
EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
S.A. ↓	5,326,659	7/5/94	Liu, et al.	430	5	3/5/92
	5,340,700	8/23/94	Chen, et al.	430	312	11/3/93
	5,432,714	7/11/95	Chung, et al.	364	525	9/2/94
	5,572,598	11/5/96	Wihl, et al.	382	144	2/25/94
	5,795,688	8/18/98	Burdorf, et al.	430	30	8/14/96
	5,801,954	9/1/98	Le, et al.	364	488	4/24/96
	5,804,340	9/8/98	Garza, et al.	430	5	12/23/96
	5,815,685	9/29/98	Kamon	395	500	9/15/95
	5,825,647	10/20/98	Tsudaka	364	167.03	3/12/96
	5,849,440	12/15/98	Lucas, et al.	430	5	1/29/97
	5,862,058	1/19/99	Samuels, et al.	364	491	5/16/96
	5,900,338	5/4/99	Garza, et al.	430	5	8/15/97
	6,009,250	12/28/99	Ho, et al.	395	500.06	9/30/97
	6,009,251	12/28/99	Ho, et al.	395	500.06	9/30/97
6,011,911	1/4/00	Ho, et al.	395	500.06	9/30/97	
6,078,738	6/20/00	Garza, et al.	395	500.22	5/8/97	
EXAMINER <i>S.A.</i>			DATE CONSIDERED <i>2,19,04</i>			

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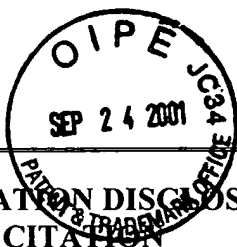
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S.A	WO 00/36525 A3	6/22/00	PCT			<input type="checkbox"/>	<input type="checkbox"/>
S.A	WO 00/67074 A1	11/9/00	PCT			<input type="checkbox"/>	<input type="checkbox"/>
S.A	WO 00/67075 A1	11/9/00	PCT			<input type="checkbox"/>	<input type="checkbox"/>
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S-A	Brunner, T. et al., "Approximate Models For Resist Processing Effects", <i>SPIE</i> , Vol. 2726, pp. 198-207, March 1996.	
↑	Casey, Jr., J.D. et al., "Chemically Enhanced FIB Repair Of Opaque Defects On Molybdenum Silicide Photomasks", <i>SPIE</i> , Vol. 3236, pp. 487-497 (1997).	
	Chang, K. et al., "Accurate Modeling of Deep Submicron Interconnect Technology", <i>TMA Times</i> , Vol. IX, No. 3 (1997).	
	Cobb, et al., "Fast Sparse Aerial Image Calculation For OPC", <i>SPIE</i> , Vol. 2621, pp. 534-544.	
	Fukuda, H. et al., "Determination Of High-Order Lens Aberration Using Phase/Amplitude Linear Algebra", <i>J. Vac. Sci. Technol. B</i> , Vol. 17, No. 6, pp. 3318-3321, November/December 1999.	
	Fukuda, H., "Node-Connection/Quantum Phase-Shifting Mask: Path To Below 0.3 $\mu$ m Pitch, Proximity Effect Free, Random Interconnects And Memory Patterning", <i>J. Vac. Sci. Technol. B</i> , Vol. 17, No. 6, pp. 3291-3295, November/December 1999.	
	Gans, F. et al., "Printability And Repair Techniques For DUV Photomasks", <i>SPIE</i> , Proceedings of the 17 <sup>th</sup> Annual Symposium on Photomask Technology and Management, Vol. 3236, pp. 136-141 (1997).	
	Ham, Y.M. et al., "Dependence Of Defects In Optical Lithography", <i>Jpn. J. Appl. Phys.</i> , Vol. 31, pp. 4137-4142 (1992).	
	Henke, W. et al., "A Study Of Reticle Defects Imaged Into Three-Dimensional Developed Profiles Of Positive Photoresist Using The Solid Lithography Simulator", <i>Microelectronics Eng.</i> , Vol. 14, pp. 283-297 (1991).	
	Ibsen, K. et al., "Clear Field Reticle Defect Disposition For Advanced Sub-Half Micron Lithography", <i>SPIE</i> , Proceedings of the 17 <sup>th</sup> Annual Symposium on Photomask Technology and Management, Vol. 3236, pp. 124-135 (1997).	
	Karklin, L., "A Comprehensive Simulation Study Of The Photomask Defects Printability", <i>SPIE</i> , Vol. 2621, pp. 490-504 (1995).	
↓	Kubota, H. et al., "A Fast Method Of Simulating Resist Pattern Contours Based On Mean Inhibitor Concentration", <i>Jpn. J. Appl. Phys.</i> , Vol. 37, pp. 5815-5820 (1998).	
	Neureuther, A., "Modeling Phase Shifting Masks", <i>SPIE</i> , 10 <sup>th</sup> Annual Symposium on Microlithography, Vol. 1496, pp. 80-85 (1990).	
EXAMINER	DATE CONSIDERED	

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SEP 25 2001  
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	
S.A	Nistler, J. et al., "Large Area Optical Design Rule Checker For Logic PSM Application", <i>SPIE</i> , Photomask and X-Ray Mask Technology, Vol. 2254, pp. 78-92 (1994).
	Nistler, J. et al., "Phase Shift Mask Defect Printability Analysis", Proceedings of the Microlithography Seminar INTERFACE '93, OCG Microelectronic Materials, Inc., pp. 11-28 (1993).
	Ohtsuka, H. et al., "Phase Defect Repair Method For Alternating Phase Shift Masks Conjugate Twin-Shifter Method", <i>Jpn. J. Appl. Phys.</i> , Vol. 31, pp. 4143-4149 (1992).
	Pati, Y.C. et al., "Exploiting Structure In Fast Aerial Image Computation For Integrated Circuit Patterns", <i>IEEE Transactions on Semiconductor Manufacturing</i> , Vol. 10, No. 1, pp. 62-74, February 1997.
	Pati, Y.C. et al., "Phase-Shifting Masks For Microlithography: Automated Design And Mask Requirements", <i>J. Opt. Soc. Am.</i> , Vol. 11, No. 9, pp. 2438-2452, September 1994.
	Rieger, M. et al., "System For Lithography Proximity Compensation", Precim Company, Portland, Oregon, September 1993 (28 pages).
	Spence, C. et al., "Automated Determination Of CAD Layout Failures Through Focus: Experiment And Simulation", <i>SPIE</i> , Vol. 2197, pp. 302-313 (1994).
	Stirniman, J. et al., "Spatial Filter Models To Describe IC Lithographic Behavior", Precim Corporation, Portland, Oregon (10 pages).
	Sugawara, M. et al., "Defect Printability Study Of Attenuated Phase-Shifting Masks For Specifying Inspection Sensitivity", Semiconductor Company, Sony Corporation, Kanagawa, Japan (16 pages).
	Vacca, A. et al., "100nm Defect Detection Using A Dynamically Programmable Image Processing Algorithm", <i>SPIE</i> , Vol. 3236 (1997) (Abstract Only).
	Vacca, A. et al., "100nm Defect Detection Using An Existing Image Acquisition System", <i>SPIE</i> , Vol. 3236, pp. 208-214 (1998).
	Watanabe, H. et al., "Detection And Printability Of Shifter Defects In Phase-Shifting Masks II Defocus Characteristics", <i>Jpn. J. Appl. Phys.</i> , Vol. 31, pp. 4155-4160 (1992).
✓	Wiley, J. et al., "Device Yield And Reliability By Specification Of Mask Defects", <i>Solid State Technology</i> , Vol. 36, No. 7, pp. 65-66, 70, 72, 74, 77, July 1993.

EXAMINER S.A. [Signature]	DATE CONSIDERED 2, 19, 04
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S.A	Wiley, J. et al., "The Effect Of Off-Axis Illumination On The Printability Of Opaque And Transparent Reticle Defects", <i>SPIE</i> , Vol. 2512, pp. 432-440 (1995).	
S.A	Wiley, J. et al., "Phase Shift Mask Pattern Accuracy Requirements And Inspection Technology", <i>SPIE</i> , Integrated Circuit Metrology, Inspection, and Process Control V, Vol. 1464, pp. 346-355 (1991).	
EXAMINER	<i>Splgi</i>	DATE CONSIDERED <i>2,19,04</i>

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